

CLAIMS

What is claimed is:

1. A method of apportioning additional thread activation time to computer application threads that experience activation time budget overruns, the method comprising:
setting a variable to a system pad time value;
activating an application thread for an actual activation time;
comparing the application thread's actual activation time with its activation time budget; and
if the actual thread activation time exceeds the thread activation time budget, adjusting the system pad time value to thereby obtain an updated pad time value.
2. The method of Claim 1, further comprising:
setting the variable to the updated pad time value.
3. The method of Claim 2, further comprising:
initiating a predetermined response if the updated pad time value is adjusted to a predetermined response initiation value.
4. The method of Claim 3, wherein the predetermined response initiation value is a value less than zero.
5. The method of Claim 1, further comprising:
resetting the variable to the predetermined system pad time value at a predetermined periodicity.
6. The method of Claim 5, wherein the predetermined periodicity is a base period of the application being executed.
7. The method of Claim 1, wherein the thread activation time budget comprises:
a thread execution time; and
a thread pad time.

8. The method of Claim 7, further comprising:
subtracting the thread pad time from the thread activation time budget to obtain an initial thread timer value;
initializing a thread timer to the initial thread timer value; and
enabling the thread timer upon activation of the application thread.

9. The method of Claim 8, further comprising:
disabling the thread timer upon completion of the actual activation time to thereby obtain a final thread timer value; and
adding the thread pad time to the final thread timer value to determine an activation time difference value between the application thread's actual activation time and its activation time budget.

10. The method of Claim 9, wherein the thread timer is operable to decrement from the initial thread timer value to the final thread timer value

11. The method of Claim 9, further comprising:
determining whether the activation time difference value is a positive value or a negative value; and
if the activation time difference is negative, adding the activation time difference value to the system pad time value to obtain an updated pad time value.

12. The method of Claim 11, further comprising:
determining whether the updated pad time value a positive value or a negative value; and
if the updated pad time value is a negative value, initiating a predetermined response.

13. A system for apportioning additional thread activation time to application threads of an application that experience activation time budget overruns while executing on a computer, comprising:

a memory adapted to store at least a system pad time value therein; and

a processor in operable communication with the memory and operable to:

(i) activate one or more application threads for an actual activation time,

(ii) compare the application thread's actual activation time with its activation time budget, and

(iii) if the actual thread activation time exceeds the thread activation time budget, adjust the system pad time value to obtain an updated pad time value.

14. The system of Claim 13, wherein the processor is further operable to store the updated pad time value in the memory.

15. The system of Claim 14, wherein the processor is further operable to initiate a predetermined response if the updated pad time value is adjusted to a predetermined response initiation value.

16. The system of Claim 15, wherein the predetermined response initiation value is a value less than zero.

17. The system of Claim 13, wherein the processor is further operable to reset the variable to the predetermined system pad time value at a predetermined periodicity.

18. The system of Claim 17, wherein the predetermined periodicity is a base period of the application being executed.

19. The system of Claim 13, wherein the thread activation time budget comprises:

a thread execution time; and

a thread pad time.

20. The system of Claim 19, further comprising:
a thread timer in communication with the processor and operable, in response to an enable signal from the processor, to determine the actual activation time,
wherein the processor is further operable to:
subtract the thread pad time from the thread activation time budget to obtain an initial thread timer value,
initialize the thread timer to the initial thread timer value, and
supply the enable signal to the thread timer upon activation of the application thread.

21. The system of Claim 20, wherein the processor is further operable to:
supply a disable signal to the thread timer upon completion of the actual activation time to thereby stop the thread timer and obtain a final thread timer value; and
add the thread pad time to the final thread timer value to determine an activation time difference value between the application thread's actual activation time and its activation time budget.

22. The system of Claim 18, wherein the thread timer is operable to decrement from the initial thread timer value to the final thread timer value

23. The system of Claim 18, wherein the processor is further operable to:
determine whether the activation time difference value is a positive value or a negative value; and
if the activation time difference is negative, add the activation time difference value to the system pad time value to obtain an updated pad time value.

24. The system of Claim 23, wherein the processor is further operable to:
determine whether the updated pad time value a positive value or a negative value;
and
if the updated pad time value is a negative value, initiate a predetermined response.

25. A computer readable medium containing computer executable code for instructing a computer, which is configured to apportion additional thread activation time to computer application threads that experience activation time budget overruns, to perform the steps of:

- setting a variable to a system pad time value;
- activating an application thread for an actual activation time;
- comparing the application thread's actual activation time with its activation time budget; and
- if the actual thread activation time exceeds the thread activation time budget, adjusting the system pad time value to thereby obtain an updated pad time value.

26. The computer readable medium of Claim 25, containing computer executable code for instructing a computer to perform the further steps of:

- setting the variable to the updated pad time value.

27. The computer readable medium of Claim 26, containing computer executable code for instructing a computer to perform the further steps of:

- initiating a predetermined response if the updated pad time value is adjusted to a predetermined response initiation value.

28. The computer readable medium of Claim 27, wherein the predetermined response initiation value is a value less than zero.

29. The computer readable medium of Claim 25, containing computer executable code for instructing a computer to perform the further steps of:

- resetting the variable to the predetermined system pad time value at a predetermined periodicity.

30. The computer readable medium of Claim 29, wherein the predetermined periodicity is a base period of the application being executed.

31. The computer readable medium of Claim 25, wherein the thread activation time budget comprises:

- a thread execution time; and
- a thread pad time.

32. The computer readable medium of Claim 31, containing computer executable code for instructing a computer to perform the further steps of:

- subtracting the thread pad time from the thread activation time budget to obtain an initial thread timer value;
- initializing a thread timer to the initial thread timer value; and
- enabling the thread timer upon activation of the application thread.

33. The computer readable medium of Claim 32, containing computer executable code for instructing a computer to perform the further steps of:

- disabling the thread timer upon completion of the actual activation time to thereby obtain a final thread timer value; and
- adding the thread pad time to the final thread timer value to determine an activation time difference value between the application thread's actual activation time and its activation time budget.

34. The computer readable medium of Claim 33, wherein the thread timer is operable to decrement from the initial thread timer value to the final thread timer value

35. The computer readable medium of Claim 33, containing computer executable code for instructing a computer to perform the further steps of:

- determining whether the activation time difference value is a positive value or a negative value; and
- if the activation time difference is negative, adding the activation time difference value to the system pad time value to obtain an updated pad time value.

36. The computer readable medium of Claim 35, containing computer executable code for instructing a computer to perform the further steps of:

determining whether the updated pad time value a positive value or a negative value; and

if the updated pad time value is a negative value, initiating a predetermined response.

37. A system for apportioning additional thread activation time to application threads of an application that experience activation time budget overruns while executing on a computer, comprising:

setting means for setting a variable to a system pad time value;

thread activation means for activating an application thread for an actual activation time;

activation time determination means, in operable communication with the thread activation means, for determining the application thread's actual activation time;

comparison means, in operable communication with the activation time determination means, for comparing the application thread's actual activation time with its activation time budget; and

adjustment means, in operable communication with the comparison means, for adjusting the system pad time value to thereby obtain an updated pad time value if the actual thread activation time exceeds the thread activation time budget.